Arctic tides from GPS on sea ice

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Abstract text
The presence of sea-ice in the Arctic Ocean plays a significant role in the Arctic climate. Sea ice dampens the ocean tide amplitude with the result that global tidal models which use only astronomical data perform less accurately in the polar regions. This study presents a kinematic processing of Global Positioning System (GPS) buoys placed on sea-ice at five different sites north of Greenland for the study of sea level height and tidal analysis to improve tidal models in the Central Arctic. The GPS measurements are compared with the Arctic tidal model AOTIM-5, which assimilates tide-gauges and altimetry data. Furthermore, we prove that the geodetic reference ellipsoid WGS84, can be interpolated to the tidal defined zero level by applying geophysical corrections to the GPS data.

Topics
13 Cryosphere and ocean dynamics (e.g., thermohaline circulation)

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